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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,272	10/27/2003	Hiromitsu Nakaoka	12844.49US01	4693
23552	7590	10/03/2006	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			NGUYEN, JIMMY H	
			ART UNIT	PAPER NUMBER
			2629	

DATE MAILED: 10/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/695,272

Applicant(s)

NAKAOKA ET AL.

Examiner

Jimmy H. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 5-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is made in response to applicant's RESPONSE TO ELECTION REQUIREMENT AND AMENDMENT, filed on 08/22/2006.
2. Applicant's election without traverse of species II, as illustrated in figure 5 in the reply filed on 08/22/2006 is acknowledged.
3. Applicant indicates claims 1-8 and 15 are readable upon the elected species II. Examiner agrees claims 1-4 readable upon the elected species II. However, Examiner disagrees claims 5-8 and 15 readable upon the elected species II, because independent claims 5 and 15 recites a feature, "... a signal side driving portion for supplying a PWM signal voltage to be a forward approach PWM signal voltage or a rearward approach PWM signal voltage to each of the signal electrodes synchronously with the scan of the scanning side driving portion..." (see lines 7-9 of these claims), which is only readable upon the non-elected species IV as illustrated by Fig. 7. The elected species II as illustrated by Fig. 5 requires **both** a forward approach PWM signal voltage and a rearward approach PWM signal voltage to be supplied to **each** of the signal electrodes.
4. Claims 5-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species II as indicated by the applicant in the RESPONSE TO ELECTION REQUIREMENT, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 08/22/2006. Claims 1-4 are considered as follows:

Claim Objections

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5. Claim 1 is objected to because of the following informalities: -- rearward approach -- should be inserted immediately after “and the” in line 10. Appropriate correction is required.

6. Claim 3 is objected to because of the following informalities: -- pixel corresponding to -- should be inserted immediately after “applied to” in lines 5-8. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claims above, the term "almost equal" in independent claim 1, lines 8-9, is a relative term, which renders the claim indefinite. The term "almost equal" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Moreover, what a specific different number (or range) between the numbers of the forward approach PWM signal voltages and the rearward approach PWM signal voltages should be such that the numbers of the forward approach PWM signal voltages and the rearward approach PWM signal voltages are almost equal.

Additionally to claim 4, it is not clear what the applicant means “the PWM signal voltages and the scanning voltages are each alternated synchronously to have a predetermined relationship with a frame cycle” (see lines 3-5), i.e., each scanning voltage is alternate synchronously to have a predetermined relationship with a frame cycle (this is not shown in any

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figure or described in the specification) and each PWM signal voltage is alternate synchronously to have a predetermined relationship with a frame cycle (this is not clear what each PWM signal voltage is synchronized with). Note that, as best understood, the disclosure may teach “the forward approach and rearward approach PWM signal voltages alternated and synchronized with the scanning voltage applied to the scanning electrode during a predetermined period in a frame cycle”, which is different from the above underlined limitation.

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 1-4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to claims 1-4, the disclosure, when filed, does not fairly convey to one of ordinary skill in the art that applicants had in their possession the claimed limitation, “when the forward approach PWM signal voltages and the PWM signal voltages are scanned by each scanning electrode” presently recited in last two lines of independent claim 1. There is nowhere in the disclosure to teach each scan electrode capable of scanning the forward approach PWM signal voltages and the PWM signal voltages. The original disclosure, when filed, specifically Fig. 5 and the corresponding description, page 12, line 30 through page 13, line 12, expressly discloses “In Fig. 5, **PWM signal voltages applied to signal electrodes X1 to X4** generate signal

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voltages having such a rearward/forward approach combination (hereinafter referred to as a rear/forward approach signal voltage) that **a rearward approach is carried out for a scanning period** in which scanning electrodes Y1 and Y3, that is, odd-numbered scanning electrodes are selected and a forward approach is carried out for a scanning period in which scanning electrodes Y2 and Y4, that is, even-numbered scanning electrodes are selected in first and third frames.... selected” Note that the mentioned disclosure has a totally different meaning as that of the above underlined limitation.

11. It is noted to applicants that due to the above 112 rejections, the following art rejections are based as best understood by the examiner.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

13. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Yasunishi et al. (US 6,597,335 B2), hereinafter Yasunishi.

As to claim 1, Yasunishi discloses a display driving method (see Fig. 10d, col. 4, line 66 through col. 5, line 16) of a simple matrix display (a LCD device 100, see Fig. 1, col. 3, line 59) for performing a PWM control, comprising: selectively applying a forward approach PWM signal voltage (a voltage in a width from about a midway position to a final position for an interval period of a latch clock signal LP, see a waveform of LP in Fig. 10a and a waveform of C1M in Fig. 10d) and a rearward approach PWM signal voltage (a voltage in a width from a falling edge of clock signal LP to about a midway position (at the falling edge of the PWM pulse) for an interval period of a latch clock signal LP, see a waveform of LP in Fig. 10a and a waveform of C1M in Fig. 10d) to signal electrodes (column electrodes), and controlling the PWM signal voltages applied to each of the signal electrodes within a predetermined period such that numbers of the forward approach PWM signal voltages and the rearward approach PWM signal voltages are equal to each other in relation to each scanning electrode. See Fig. 10d and col. 3, line 59 through col. 4, line 11. Accordingly, the limitations of claim 1 are read in the Yasunishi reference.

As to claim 2, Yasunishi discloses that the forward approach PWM signal voltage and the rearward approach PWM signal voltage are switched in every predetermined frame cycle (see Fig. 10d).

As to claim 3, Yasunishi further discloses that the PWM signal voltage is applied to have a rearward/forward approach combination in which the rearward approach PWM signal voltage is applied to an odd-numbered scanning electrode and the forward approach PWM signal voltage

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is applied to an even-numbered scanning electrode and a forward/rearward approach combination in which the forward approach PWM signal voltage is applied to the odd-numbered scanning electrode and the rearward approach PWM signal voltage is applied to the even-numbered scanning electrode. See waveforms of C1M and R1M in Fig. 10d.

As to claim 4, Yasunishi discloses that the PWM signal voltage and a scanning voltage to be applied to the scanning electrode are alternated synchronously to have a predetermined relationship with a frame cycle. See waveforms of C1M and R1M in Fig. 10d.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shoji et al. (US 5,606,342, see Fig. 9) discloses a display driving method of a simple matrix display for performing a PWM control, comprising: selectively applying rearward approach PWM signal voltages to signal electrodes.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy H. Nguyen whose telephone number is 571-272-7675. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached at 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JHN
September 29, 2006

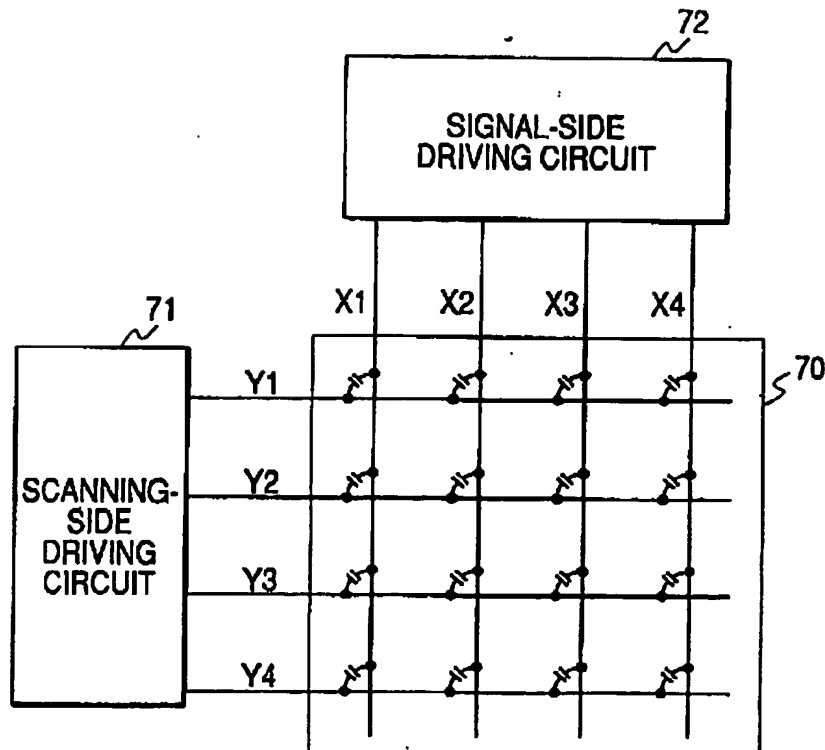
A handwritten signature in black ink, appearing to read 'JH Nguyen', with a long horizontal flourish extending to the right.

Jimmy H. Nguyen
Primary Examiner
Technology Division: 2629

Approved by
JHN
9/28/06

REPLACEMENT SHEET 1 of 2
Inventor: NAKAOKA, et al.
Docket No.: 12844.0049US01
Title: DISPLAY DRIVING METHOD AND DISPLAY DEVICE
Attorney Name: Douglas P. Mueller
Phone No.: 612-455-3804

FIG. 10

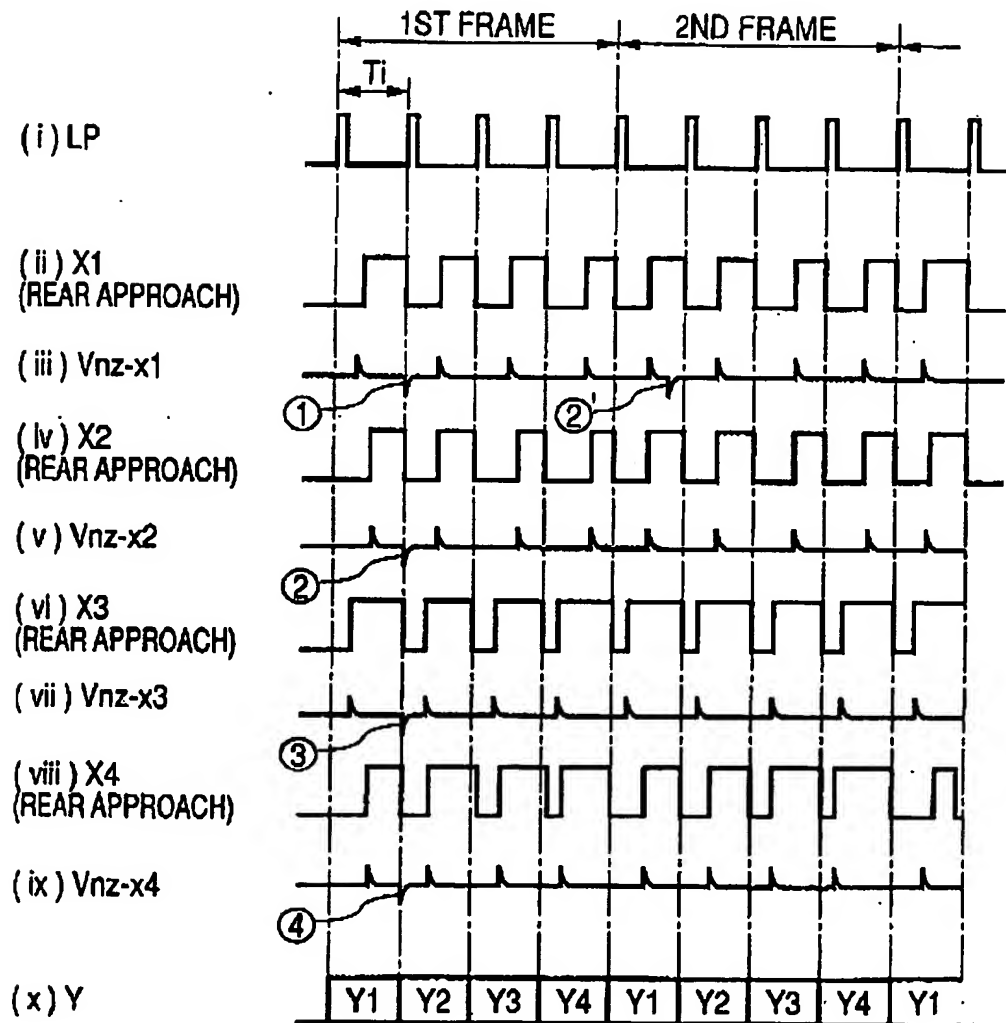


PRIOR ART

REPLACEMENT SHEET 2 of 2
 Inventor: NAKAOKA, et al.
 Docket No.: 12844,0049US01
 Title: DISPLAY DRIVING METHOD AND DISPLAY DEVICE
 Attorney Name: Douglas P. Mueller
 Phone No.: 612-455-3804

JH/9/28/06

FIG. 11



PRIOR ART